Career Case Manager Technologies

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Achieving Human Resource Solutions Through Innovative Research

What's the functional issue? What does the Sailor want to know?

NPRST

- "One size fits all" career path approach
- Current planning guidance clouded by rumor, conjecture
- No rigor in career planning
  - Impacts morale
  - Guess work at "best" career choices
  - Bad choices often result in disappointment leading to decisions to leave the Service
- Sailors/Marines should be afforded some sense of their chances for:
  - Promotion
  - Education
  - Stability
  - Others

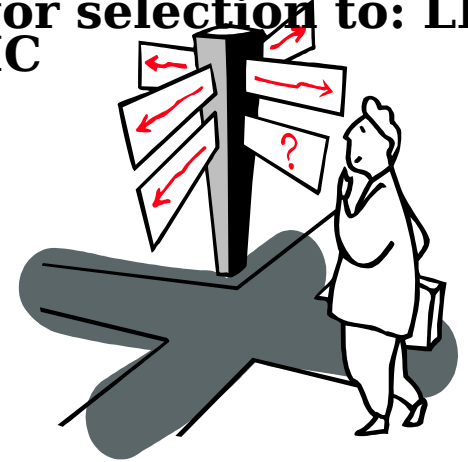
- What's the best job for:

Quickest promotion

Best training

Education opportunity

- What are my chances of staying in this location for the next XX years?
- How can I improve my chances for selection to: LDO, CWO, CMC
- Others?



Sea Warrior sets the stage

NPRST

- **Single point of entry to personal portal**
- **Links CMS, 5VM, MPSM and HSI**
- **Improves Sailor and Command involvement**
- **Puts vital information within Sailor's reach**
  - **Job, performance, career path, etc**
  - **"Chamber of commerce"**
- **Much more**

CCMT is a prime enabler for *Sea Warrior*

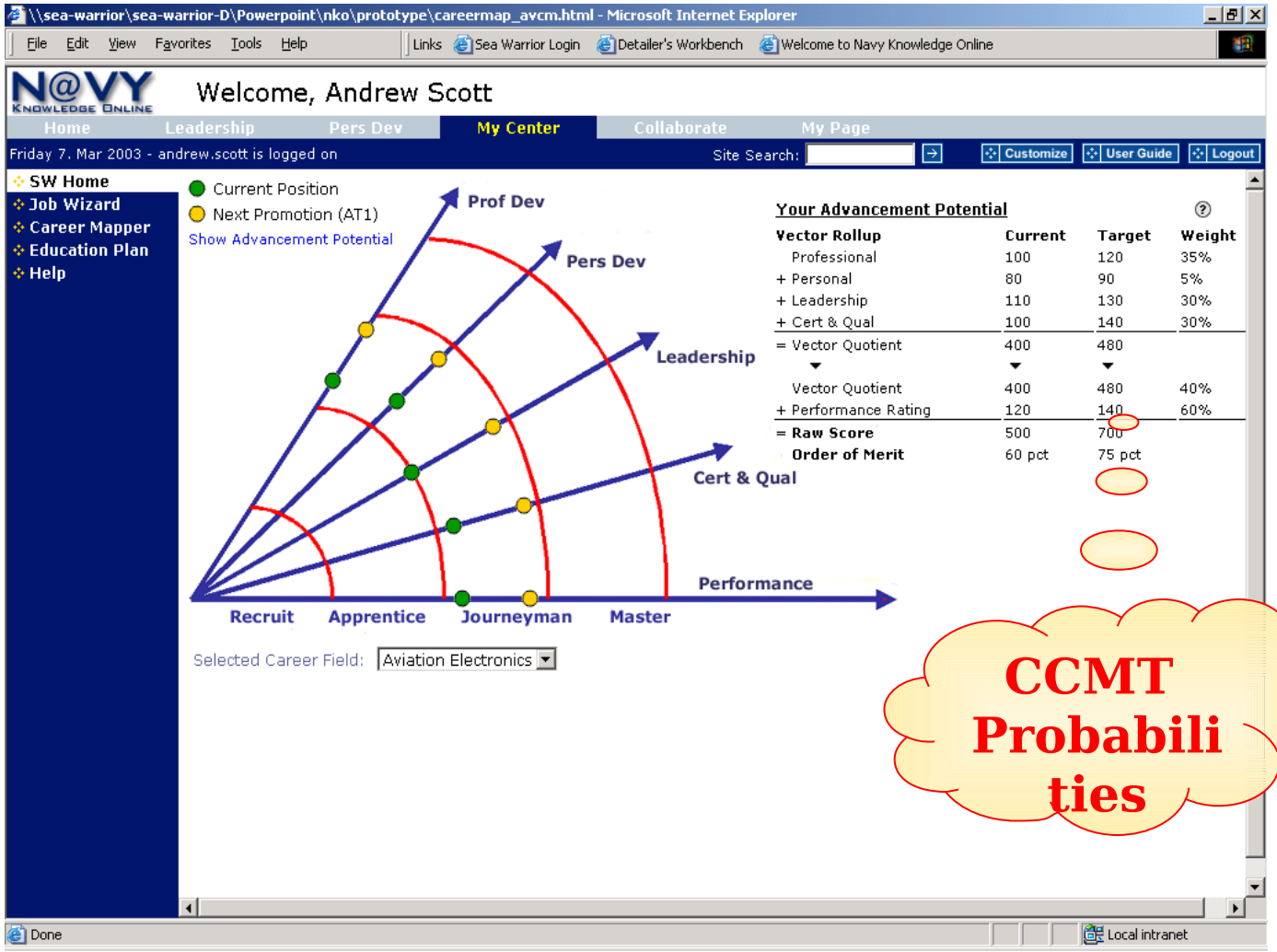
Payoffs

NPRST

- **Expected Measures of success from these effort**
  - **Prime enabler for Sea Warrior**
    - **Insertion of models into Web Based Marketplace**
  - **Accurate probability predictions based on analysis of historical data**
  - **Increased customer satisfaction**
  - **Enhanced career planning**
    - **Allows Sailors to career plan controlling for geographic stability, next preferred assignment, education and training opportunities.**
  - **CCMT information reduces uncertainty about choice → expect to observe relative lower bids submitted via Distribution Incentive System.**

Where this fits within 5VM…

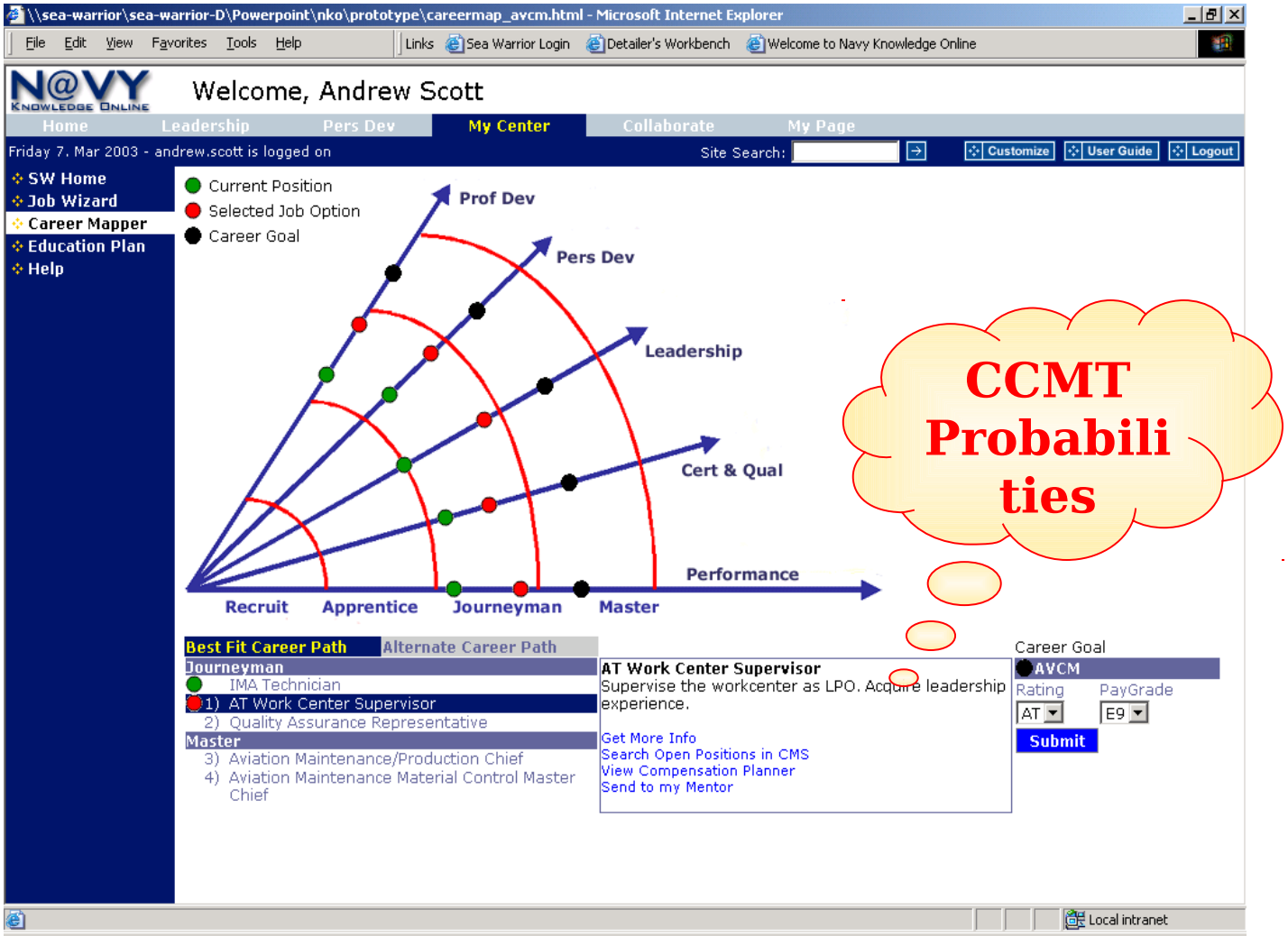
NPRST



CCMT Probabilities

And…

NPRST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Job Wizard
Career Mapper
Education Plan
Help
Current Position
Selected Job Option
Career Goal
Prof Dev
Pers Dev
Leadership
Cert & Qual
Performance
Recruit Apprentice Journeyman Master
CCMT Probabilities
Best Fit Career Path
Alternate Career Path
Journeyman
IMA Technician
1) AT Work Center Supervisor
2) Quality Assurance Representative
Master
3) Aviation Maintenance/Production Chief
4) Aviation Maintenance Material Control Master Chief
AT Work Center Supervisor
Supervise the workcenter as LPO. Acquire leadership experience.
Get More Info
Search Open Positions in CMS
View Compensation Planner
Send to my Mentor
Career Goal
AVCM
Rating
PayGrade
AT
E9
Submit
Local intranet

Accomplishments in FY03

NPRST

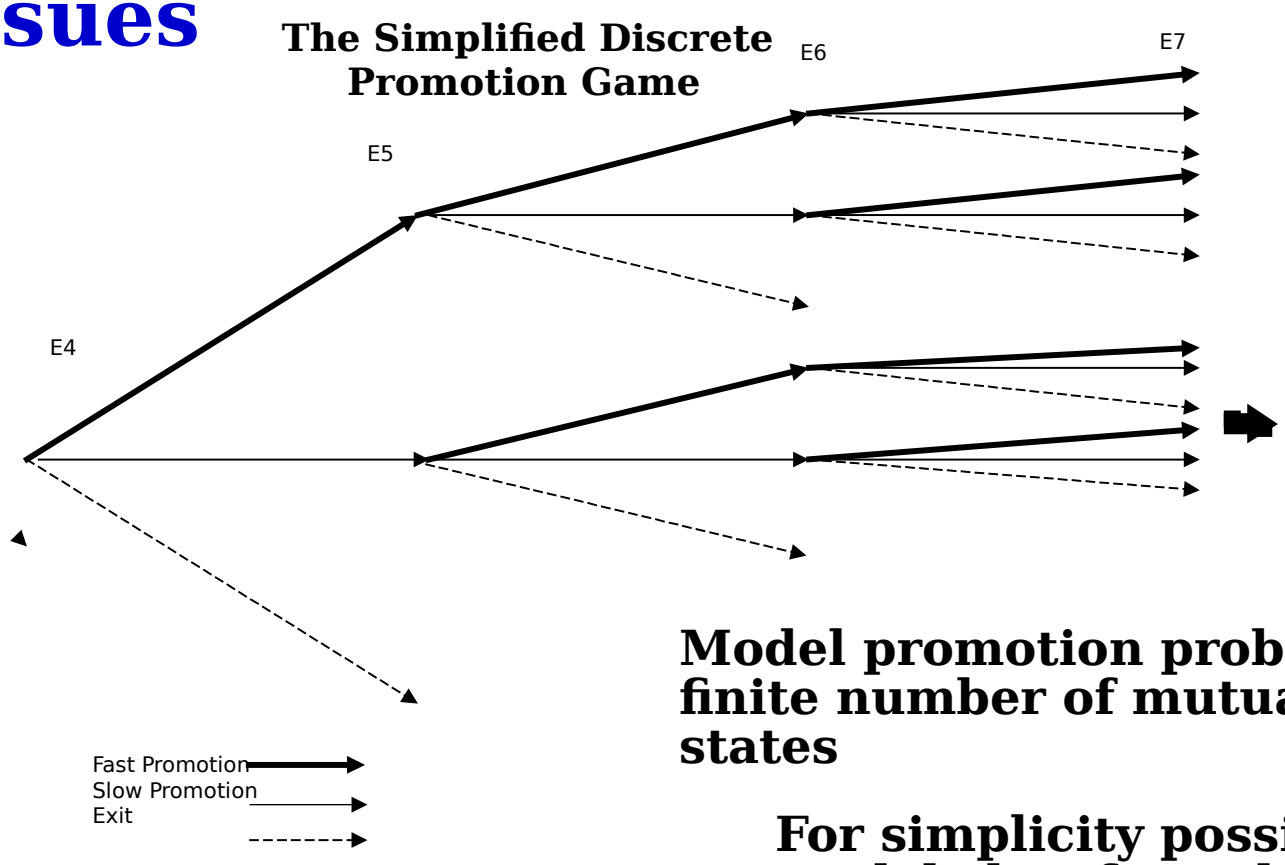
- **Statistical Model**
  - **Specification of General GME Model with Global Covariates**
    - **Amos Golan (American University), Jeff Perloff (U. of CA Berkley) and William Green (NYU), Tanja F. Blackstone (NPRST)**
    - **Theoretical model – no validation or estimation undertaken in FY03**
- **Data**
  - **Four data sets**
    - **Sample and Event data for Nuclear and Administration Communities**
      - **Sample data random draw from E6-E7**
      - **Event data captures promotions or loss E6-E7**
- **Interface Specification**
  - **Limited to discussion with 5VM model team of mapping and information requirements of CCMT with 5VM**

Major Focus in FY04

NPRST

- **Statistical Model**
  - **Empirical estimation and validation of model for specified skill groups**
  - **Probabilities**
    - **Promotion**
    - **Promotion conditional on geographic stability, educational and training opportunities, next assignment.**
  - **Output will provide slate of alternative choices with higher probabilities**
- **Data (1992-2003)**
  - **Creation of data sets for 3-10 additional skill groups, E4-E7**
    - **Criteria for skill group choice – sample size, quality, overmanned vs. undermanned, merged skills**
  - **Data to be subsetted into fast, slow promotions and losses**
  - **Additional variables to be added to new and existing data sets**
    - **Agreement on variable transformations, definitions, and proxies**
  - **Possible complications**
    - **Need measure/proxy for FITREP**
      - **Proposed is PMA**
- **Interface Specification Mock-up**
  - **Coordinated with 5VM team and Web Based Marketplace effort**

General GME Model with Global Covariates with specification issues



Model promotion probabilities on a finite number of mutually exclusive states

For simplicity possible states are modeled as fast, slow promoters or losses.

General GME Model with Global Covariates

NPRST

Model →

$$\sum_{t=2}^{T}\sum_{i=1}^{N} y_{itj}\, x_{its}^{g} = \sum_{t=1}^{T-1}\sum_{i=1}^{N}\sum_{k=1}^{K} p_{kj}\, y_{itk}\, x_{its}^{g} + \sum_{t=1}^{T-1}\sum_{i=1}^{N} e_{itj}\, x_{its}^{g}$$

LHS – probability of promotion of the ith individual at t=2,
in grade j with x characteristics at time t, controlling for t=2 global (policy and macro) variables.

RHS – probability of promotion of the ith individual at t=1
in grade k with x characteristics, controlling for t=1 global (policy and macro) variables.

Estimate one period forecast – with possibility of two period forecast model.

Other Specification Issues

NPRST

- **Continuous or Discrete Model**
- **Unbalanced panel data**
  - **Capture unobserved heterogeneity**
    - **Fixed or random effects?**
- **Current model specification is First Order Markov model in GME framework**
  - **Second Order Markov Model may be considered**
    - **Probability of ith individual is in grade L at t=1 given that they were in grade K at t-1 and grade J at t-2**
      - **Number of parameters increase significantly → $K^2(K-1)$ for K states**
        - **Loss of degrees of freedom – problematic for small samples**
- **RHS and LHS censored data**
- **Introduction of cohort dynamics**
  - **Cohort of ith individual at t=1 may differ from cohort and t=2.**
- **How should vacancies be modeled?**
  - **Obtain data on actual vacancy number?**
  - **Or assume general equilibrium?**
- **How should constraints be introduced into model?**
- **How should global variables be introduced into model?**

Interface FY04

- **FY04 focuses strictly on possible interface display**
  - **Mock-ups using static shots**
    - **Mock-ups to be done internally to NPRST**
- **Leveraging 6.1 research on display of complex data**
  - **Colors**
  - **Graphics**
  - **Information display**
- **Interface information will display queries input by Sailor and alternatives**
  - **Alternatives/options designed to help career decision making**
- **Focus on interface with 5VM**
  - **Coordinate with 5VM Team**